INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

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CANADA

MEMO TO EDITORS:

The November-December package of IDRC Features takes a look at some different approaches to development problems.

- From Senegal, on the edge of the Sahel, science writer Jean-Marc Fleury reports on the first stages of a massive project that could transform the region into "the granary of West Africa". For the world news page?

- A novel solution to the growing problems of the Third World's cities is proposed by David Terry, editor of AIT Review, writing from Bangkok. He describes the "village of the future", in which low-cost technology will make rural life a much better alternative than the city slums. For the features page?

- Many Third World countries fail to make best use of the media to assist their development, and suppress the news instead, says a new report to the Commonwealth heads of government. Writer Bob Stanley, formerly with the Commonwealth Information Service, reviews the hard-hitting report and its implications. For the editorial page?

- Science World, our science news briefs column, looks at how cows can be made to breed like rabbits, at how water weeds can help solve the grazing land shortage, and how village gossips are helping to spread the development message. Use as a featured column or as handy short fillers.

IDRC Features are articles by reputable writers from around the world, dealing with topics related to science and technology for development in a popular style. The service is published 10 times a year by the Communications Division of the International Development Research Centre, and distributed free of charge, primarily to news media in Third World countries.

No fee is charged for the use of any of this material, but editors are requested to send one clipping of each article used to IDRC. Your comments and suggestions would also be appreciated.

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FEATURE

A monthly features service on scientific, technical, and educational subjects pertinent to development.

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A RIVER TO BE HARNESSED

by JEAN-MARC FLEURY

Flocks of small birds invade the rice fields bordering the Senegal River at the end of October, just before harvesting begins. These are the "quelea-quelea", a type of sparrow, which fly in from nearby Lake Guiers to sample the results of the labour of Mauritanian and Senegalese rice growers. In the dry season, when food is scarce and cultivated areas are small, the birds spend months in the fields, sometimes consuming the entire grain harvest.

The agronomists from the West African Rice Development Association (WARDA), stationed at Richard-Toll, also have a bone to pick with the voracious sparrows: they are unable to determine the exact yield of their experimental varieties because of the amount consumed by the birds. Sometimes, the researchers toy with the idea of bird-resistant varieties, but they do not really believe in such a development. The solution to the quelea bird problem, they now hope, will come from two dams — the first at Diama (in the delta), and the second at Manantali (a tributary of the Senegal River in Mali) — which will significantly enlarge the areas cultivated throughout the year.

Irrigated rice fields capable of producing two crops a year should increase severalfold from the present ten thousand hectares. Proportionally, the damage caused by the quelea birds in the dry season will be greatly reduced.

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This $550-million hydro-agricultural project has been the subject of discussions between Senegal, Mauritania, Mali and Guinea for almost 20 years. In 1972, the first three countries joined together to form the organization for the development of the Senegal River (OMVS), which conducted feasibility and environmental impact studies costing more than $50 million. Difficulties of financing seem to have been solved and preliminary work on the Diama site has begun.

Over a distance of more than 1000 kilometres, a new environment will be created between the two dams. The agricultural potential is 550,000 hectares, from which experts expect excellent yields of sorghum, cowpeas, sugarcane, tomatoes, vegetables and fodder. However, the nature of half of the soils particularly favours rice cultivation, as has been demonstrated by Chinese experts at Gedde.

Between now and 1990, the OMVS is planning to develop an initial phase involving 100,000 hectares of valley that previously were naturally irrigated by the river floods — far from sufficient in these years of drought. The dams will regulate the river's flow; this means an end to traditional flood plain agriculture, but the villagers have been assured that they will be provided with irrigated plots to replace the land they will lose.

The fact remains that the great potential of the river basin can only be harnessed through huge investments, increasing the cost of developing each hectare of land from 1 to 2 million CFA francs ($6,000 to $12,000). This makes it important to ensure that the funds achieve their purpose through more intense harvesting. One man who believes that "the investment is worth the candle" is Herman Van Brandt. He is chief of the irrigated rice special project being carried out by WARDA, an organization comprising some 15 countries, with financial support from the International Development Research Centre, of Canada.

"We are dealing here with optimum conditions," he explains. "First, there is ideal sunshine throughout the year. The sun is rarely covered by clouds, as in humid tropical regions. Then, there are few insects. Also, it is less humid, thus reducing the incidence of fungi and virus diseases, although the situation might change when there are 200,000 hectares of rice fields all year round. Finally, the river valley is isolated by the natural barriers of two deserts, on the south and northeast." He believes conditions in the Senegal River valley are comparable to those in the Sudan, a country which, it is said, could become "the granary of Africa and the Middle East".

The development of the river presents as big a challenge to the research agronomists as it does to the civil engineers: the agronomists must create a new agro-system adapted to the remodelled river basin. In the delta region, for example, the soils have been saline for the past 10,000 years. After construction of the dams, the saline soils will be reclaimed through leaching and cultivation of salt-resistant varieties of rice.

Upstream, in the middle and upper valleys, the continental climate causes large variations in temperatures. Consequently, in the so-called cool season, from November to March, night temperatures drop to 15 degrees Celsius. But the *indica* rice varieties, preferred by the local people, slow their growth and vegetate below 20 degrees, so the researchers must find cold-resistant rice varieties. Agronomist Alioune Coly is testing 14 varieties for resistance to cold; the most promising are from relatively cool areas of India, the United States, Indonesia and Japan.

In the dry season, from April to July, the hot, sand-laden harmattan wind sometimes causes plant sterility when its peak period coincides with flowering. When the rice crop escapes the harmattan however, yields reach eight tonnes per hectare. To get around this problem Alioune Coly hopes he can develop varieties with erect leaves that protect the panicle.

The WARDA scientists at Richard-Toll intend to supply producers with a complete range of varieties that will make rice cultivation possible during all three seasons of the year. Compared with the huge sums of money allocated to actually harness the river, the agronomists' facilities seem insignificant. But their role is vital, to provide the agricultural dimension which, in the long run, will transform a drought-stricken area into the rice granary of Mauritania, Senegal and Mali.

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